

Why Is the Sky Blue?

Name: _____

Date: _____

Class: _____

Read the lesson at myweatherrock.com/journal/explainers/why-is-the-sky-blue (or the printed copy), then answer below.

Remember

Sunlight looks white, but it is every color traveling together. The air itself takes those colors apart: its molecules knock the short blue light waves sideways far more than the long red ones, so scattered blue comes at your eyes from every direction overhead. That is the whole sky. Near the horizon the light has crossed so much air that the blue gets scattered away and remixed, which is why the edges look pale, and at sunset the path is longest of all, which is why the leftovers run orange and red.

Questions

1. What color is sunlight before the air gets hold of it?

- ☐ A. Yellow
- ☐ B. Every color at once, traveling together
- ☐ C. Blue

2. Why is the sky blue instead of some other color?

- ☐ A. Air is made of a blue gas
- ☐ B. Air molecules scatter the short blue waves much more than the long red ones
- ☐ C. The sky reflects the ocean

3. Why does the sky look paler near the horizon?

- ☐ A. Clouds always gather at the edges
- ☐ B. That light crossed much more air, so the blue got scattered away and the colors remixed
- ☐ C. Your eyes see less color sideways

4. Why do sunsets run orange and red?

- ☐ A. The sun cools off in the evening
- ☐ B. The light's path through the air is longest, so the blue is gone and the long waves remain
- ☐ C. Sunsets need dust to happen

5. Why are clouds white when the sky behind them is blue?

- ☐ A. Cloud droplets scatter all colors about equally, and all colors together is white
- ☐ B. Clouds are made of snow
- ☐ C. Clouds block only the blue light

In your own words

You watch the sun go down, and the same sky that was blue all day turns orange. Explain where the blue went, using what happens to light on its longer path to your eyes.

Answer key (for the teacher)

1. What color is sunlight before the air gets hold of it?

B. Every color at once, traveling together — White light is all the colors riding together. A rainbow is that same light taken apart, which is the proof you have already seen.

2. Why is the sky blue instead of some other color?

B. Air molecules scatter the short blue waves much more than the long red ones — The molecules knock short waves sideways far more than long ones, so scattered blue reaches your eyes from every direction. The ocean story is a myth: the sky over deserts is just as blue.

3. Why does the sky look paler near the horizon?

B. That light crossed much more air, so the blue got scattered away and the colors remixed — Light from low in the sky skims through a thick slice of air. Scatter the blue enough times and the mix drifts back toward white.

4. Why do sunsets run orange and red?

B. The light's path through the air is longest, so the blue is gone and the long waves remain — At sunset the light crosses the thickest possible slice of air. The blue is scattered out along the way, and the survivors are orange and red. Plain clean air is enough.

5. Why are clouds white when the sky behind them is blue?

A. Cloud droplets scatter all colors about equally, and all colors together is white — Cloud droplets are enormously bigger than air molecules, so they do not play favorites. Every color bounces, and the mix stays white.